

# CORROCOAT NEWS

AUTUMN '90

## OPEN FOR BUSINESS AT CORROCOAT UK



Friday, June 22nd saw the official opening of Corrocoat's new factory and head office premises in Leeds. Although both areas have been in use for some months, the opening ceremony gave everyone the opportunity of participating in the celebration of the fact that the building works are finally over and we're up and running!

The formal honours were performed by Sir Gordon Jones, Chairman of Yorkshire Water, who kindly agreed to

unveil the plaque and say a few words on this auspicious occasion.

Following this formal ceremony, the invited guests adjourned to the factory - which had been imaginatively dressed up as a carnival street scene, with chairs, tables, umbrellas and special lighting, plus tables groaning under the weight of a plentiful buffet, and a freely flowing bar.

To the strains of a jazz band, some 270

staff, customers and visiting colleagues from overseas enjoyed an informal evening together.

It was especially rewarding to be able to welcome so many representatives from Corrocoat worldwide, who attended not only the opening ceremony itself, but also a series of seminars which were held during the course of the following week. These events gave everyone a chance to make the acquaintance of their colleagues from across the globe, and also afforded a valuable opportunity to compare notes and discuss individual businesses in some detail.

With our new premises now fully operational, we look forward to increased levels of business and greater efficiency all round!



Visitors and head office staff outside the new office premises in Leeds

## EXPANSION AND INVESTMENT IN THE EMERALD ISLE

Continuing our features on major expansion projects within the Corrocoat Group, we are pleased to announce the acquisition of a new 6000 sq.ft. factory in the Irish Republic, to support the increasing demand for our expert services throughout Ireland.

Situated on an impressive 1.7 acre site in Lanesborough, Co Longford, the new premises house updated blasting facilities and improved machining capabilities, designed to achieve faster turnaround and increased throughput of work.

Phil McGarry will continue to head up Corrocoat Corrosion Engineering Limited, ably assisted by Alan Hortin, who has been

appointed Sales Development Manager for Ireland. The company will now be the subject of an increased sales drive, masterminded by Phil and Alan, and assisted by Philip Howsen, who has joined us to assist in the full exploitation of this market.

A steady pattern of expansion has now been established, underlining the breadth and variety of business available in the region. Satisfied customers include Tara Mines - Europe's largest zinc lead mine, where Corrocoat has been carrying out successful work since 1982 - and diverse industries represented by companies like Irish Fertilisers, Irish Distillers and B-I.

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# EFFECTIVE SCROLL PUMP REPAIRS BY CORROCOAT UK



The specialist coating and machining techniques developed by ourselves to effect full engineering repairs on damaged pumping equipment are now widely used throughout the marine industry, and the longevity of these repairs has earned us a reputation for excellence in this field.

When the MS Petrol Bulk Rover owned by Naess Shipping was in drydock recently, it was discovered that the bores of one of the scroll pumps used to take on and discharge cargo had been severely damaged by erosion/corrosion. This damage had reached a point where efficiency was greatly reduced, with potentially adverse effects on discharge and load times.

Within the limited period determined by the length of the drydocking, Corrocoat personnel collected the scroll pump from site, pre-machined the unit to allow for the necessary coating thickness, then masked and gritblasted the bores. The unit was coated, using our own Corroglass 600 series, and post-machined back to the required dimensions to suit the scrolls.

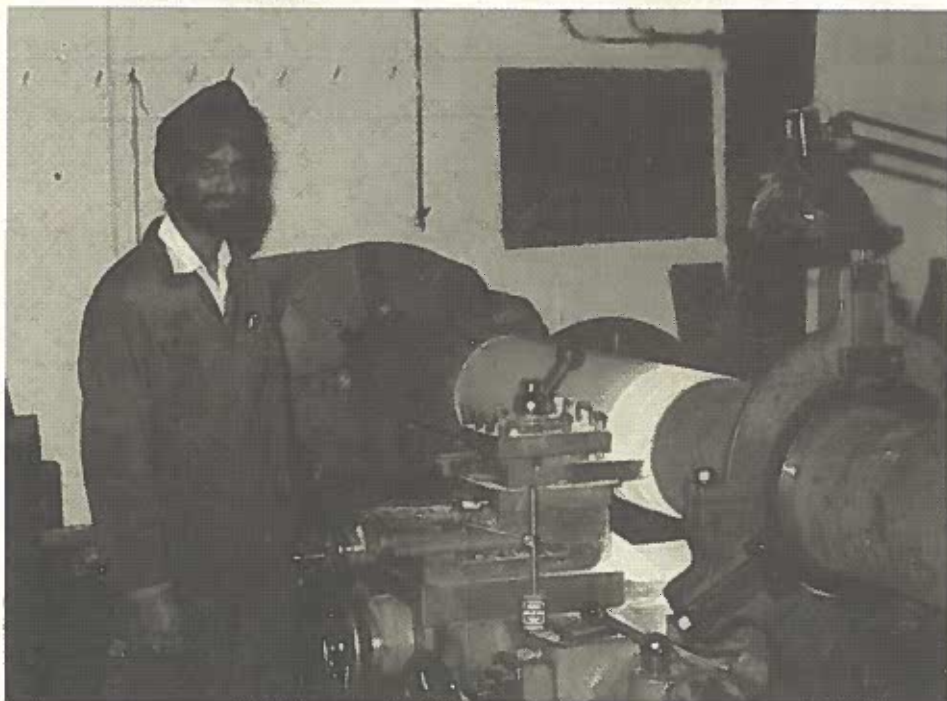
To meet the requirements of the drydock period, the pump casing was collected from site on a Thursday morning and returned, refurbished and ready for installation, just one week later.

## ENGINEERED SOLUTIONS FOR RISER PIPE EXPANSION

Expansion and contraction of pipeline lengths, brought about by fluctuations in temperature, can cause corrosion problems when such movement exposes unprotected sections of the pipe.

Mobil Oil use a caisson system, filled with corrosion-inhibiting fluid, to bring riser pipes up to platforms from the sea bed. This method effectively protects the pipes from corrosion attack by seawater. However, on one particular platform, problems had occurred in the area of the stuffing box, where the pipes protrude from the caisson. Protective coating had been applied to both the caisson and the pipes at the exit point. However, this protection did not extend to the pipes inside the seal. Therefore, as the pipes expanded and contracted, unprotected areas were left exposed and subject to corrosion damage.

Mobil requested that Corrocoat examine the possibility of creating a one metre 'collar' of protective coating around the outer surface of the riser pipes, achieving an area which could move freely



dependent upon temperature fluctuation, yet retain high levels of corrosion protection.

Corrocoat engineers were confident that our own flake glass filled coatings could be utilised for this duty, and would retain stability after machining. However, the task was further complicated by the nitrile seal on the stuffing box, which demanded a close tolerance diameter and smooth surface finish in order to continue to perform effectively.

The biggest challenge involved coping with the manufactured tolerance of the pipes, in

terms of both diameter and concentricity, which meant that we had to apply coating to a thickness well above the required minimum for corrosion protection, followed by careful machining down to the required size.

Working with pipes up to 40 feet in length, we modified our existing machining equipment to cope with the task, including the manufacture of a special jig to cope with pipes which were out of true.

The task was completed successfully on a total of 39 pipe lengths, working to extremely tight time schedules.



# CORROCOAT-SODIPIA - THE FRENCH CONNECTION



Sodipia Industries became part of the Corrocoat Group in May of 1989 (see Corrocoat News, Summer 1989).

Since May, the company has made considerable progress - underlined by recent figures which show a remarkable 54% increase in turnover during this time.

Working with a restructured sales organisation and active assistance from Corrocoat UK, Corrocoat-Sodipia has achieved marked improvements in productivity.

The increase in turnover is spread throughout Corrocoat-Sodipia's range of activities. The production of storage vessels shows a definite upward trend, whilst the contract to produce barges for pleasure cruising has not only been renewed for a further year but has also been increased.

Corrocoat-Sodipia's specialist activities - the naval launches and flight simulation spheres - remain buoyant, and experts from the company recently visited Peru to assemble a sphere for the Peruvian army, arranged through the commercial channels of Sogitec-Dassault in France.

On the practical front, intensive training of Corrocoat-Sodipia staff into the intricacies of our products and applications is now under way, and the company is already processing a number of sizeable enquiries for Corrocoat services.

# EXPANSION DOWN UNDER



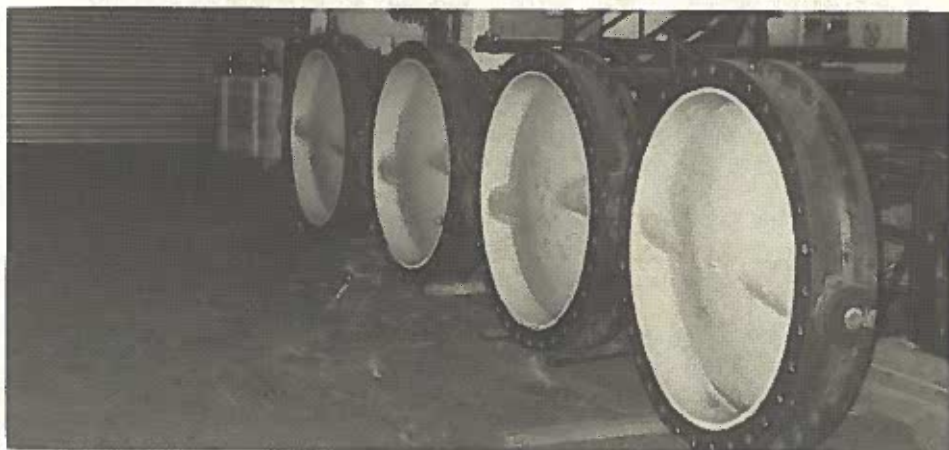
A new division of Corrocoat has been established in South Australia, following increased demand for Corrocoat's specialised services in the Territory.

Corrocoat SMS SA is a joint venture between Corrocoat Australia and Southern Machinery Services. Headed up by Managing Director Anthony Southern and Technical

Services Engineer Greg Blight, the new South Australian branch will also be responsible for Corrocoat's activities within the Northern Territory.

Business commenced in January of this year, and Corrocoat SMS SA has already received work from organisations including ICI, Adelaide Brewery and Western Mining.

# TEN YEARS OF CORROSION PROTECTION WITH CORROGLASS



We were extremely interested to see a collection of 48 inch nominal bore butterfly valves from Longannet Power Station, which arrived recently for refurbishment at our Leeds headquarters.

The eight valves had been delivered to us for general overhaul, involving complete stripdown, replacement of bearings and machining of flaps to accept stainless steel rings suitable for carrying rubber seals, followed by our own specialist coating treatment.

On delivery, it was discovered that two of

the eight valves had already been repaired and coated by ourselves - some ten years earlier, in 1979!

In comparison with the untreated valves, these two units were in an excellent state of repair. The condition of the coating was such that we were able to offer a greatly reduced cost for carrying out mechanical overhaul only, to accept the new 'eyeball' seal design, which we developed and patented specifically for this type of valve. Yet another example of the extreme longevity of our materials!

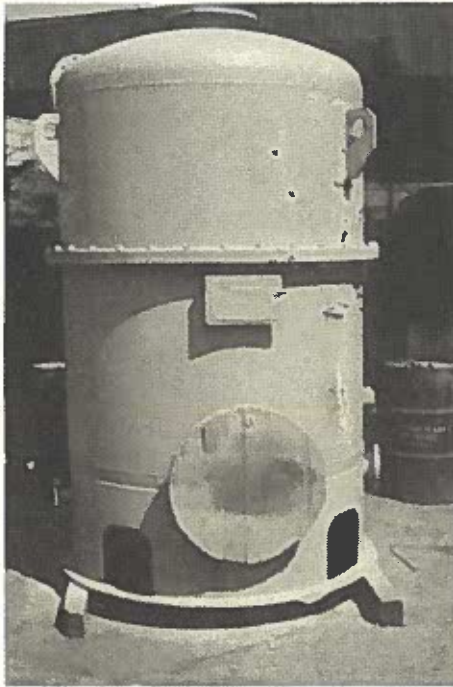


## **BINA METALINDO MANDIRI - SUCCESSFUL VALVE REFURBISHMENTS**

Bina Metalindo Mandiri have branched out into a new area, with the successful completion of the company's first valve refurbishment projects.

Full engineering repair and refurbishment work was successfully carried out, including modification of seals, to both a 48 inch four way butterfly valve from a local thermal power station, and a 36 inch hydraulic gate valve from a hydropower plant.

Following the satisfactory completion of these two projects, the company anticipates increased business in the field of valve refurbishment in the future.



## **CORROCOAT AUSTRALIA - BANKING ON EXPERTISE!**

Applying an internal lining to two large water tanks for the Reserve Bank of Australia seemed like a simple enough job for Corrocoat - until it became clear that the tanks were located on the 17th floor of a building right in the centre of Perth! Furthermore, it was vital that the job was completed over the Christmas period.

However, our Australian colleagues are well used to coping with adverse conditions. A crane was hired to hoist a compressor and other necessary equipment on to the roof of the bank, and the team completed the task well within the time limits specified by the customer.

Following the success of this somewhat complex task, further work completed for the Reserve Bank of Australia includes the coating of single stage pumps, gate valves and non-return valves for essential fire-fighting systems.

## **CORROCOAT UK - SUCCESSFUL VACUUM PUMP REPAIR**

The efficient operation of vacuum pumps, used in the paper and board industry to extract water from rolled pulp, is an essential ingredient for an effective manufacturing process.

Davidsons of Aberdeen were faced with a problem when two Nash vacuum pumps operating at one of the company's board mills required extensive repair and overhaul.

The pumps in question operate in a particularly aggressive environment, extracting water with a chemical taint, which had resulted in severe corrosion/erosion damage to the two units - in particular to the end plates and cones. Previous repair methods had proved unsuccessful, and maintenance engineers at Davidsons were seeking a more reliable and permanent solution.

The pumps were sent to our Leeds base for strip and evaluation. Despite the extensive damage, our team of specialists were able to use coating techniques to effect a full engineering repair, involving



pre- and post-machining in close tolerance areas.

The pumps are now fully operational again

at Davidsons in Aberdeen, with the entire project taking only four weeks from start to completion.



## THE METALCOAT SOLUTION TO EBB AND FLOW



A recent contract for the refurbishment of three 72" diameter nominal bore Triton BF valves gave Metalcoat a good opportunity to demonstrate the advantages of professional engineering repairs over replacement.

The valves, operational within the cooling water system of a local power station, posed a number of challenges for Metalcoat. On-site repairs were impossible, as the units were located in a tidal zone, with the lower two feet of the valve remaining constantly underwater. The resultant severe corrosion damage to the cast iron bodies meant that the discs would not seat properly.

The valves were removed to Metalcoat's own workshops. Here, full engineering repairs and refurbishment work were carried out, around the clock, and the valves were replaced and operational again in just over two weeks.

Two weeks compares very favourably indeed with estimates from the original manufacturers of the valves, who wanted no less than 32 weeks and twice the cost of the repairs to replace just the cast iron bodies!

### CORROCOAT NEW ZEALAND - FOWL CONDITIONS!

Corrosion damage to the mild steel chequer plate mezzanine floor of a rendering plant caused severe problems recently for one of Corrocoat New Zealand's poultry industry customers.

The close proximity of computers and machinery ruled out the use of sand or gritblasting, so the New Zealand team waterblasted the area at 11,000psi to clear the products of corrosion, followed by the application of two coats of our Plasmet ZF material and two coats of ZX topcoat to finish. The result was an excellent, durable floor coating.

Three weeks after completion of the job, the gearbox of the leading augur - weighing in excess of half a ton - suffered severe mechanical damage. Contractors called in to remove the unit dragged the full weight across the newly repaired floor, leaving ugly rust marks on the coating.

The New Zealand team was recalled to assess the extent of the damage, and demonstrated the strength of the coating to a delighted customer! Following a light wash with hot water, the flooring was returned to its original condition, with no physical damage whatsoever!

### CORROCOAT SINGAPORE - TRIED AND TESTED METHODS



Late in 1987, Corrocoat Singapore carried out a full turnkey project for Atwood Oceanics on a drill ship, involving the coating of potable water tanks, using Polyglass.

When the vessel returned to Singapore in January of this year, the Corrocoat team was requested

to carry out a full and detailed inspection of the coated tanks, to determine their condition after two years in service.

Following drainage of the tanks, the surfaces were hosed down and cleaned prior to inspection.

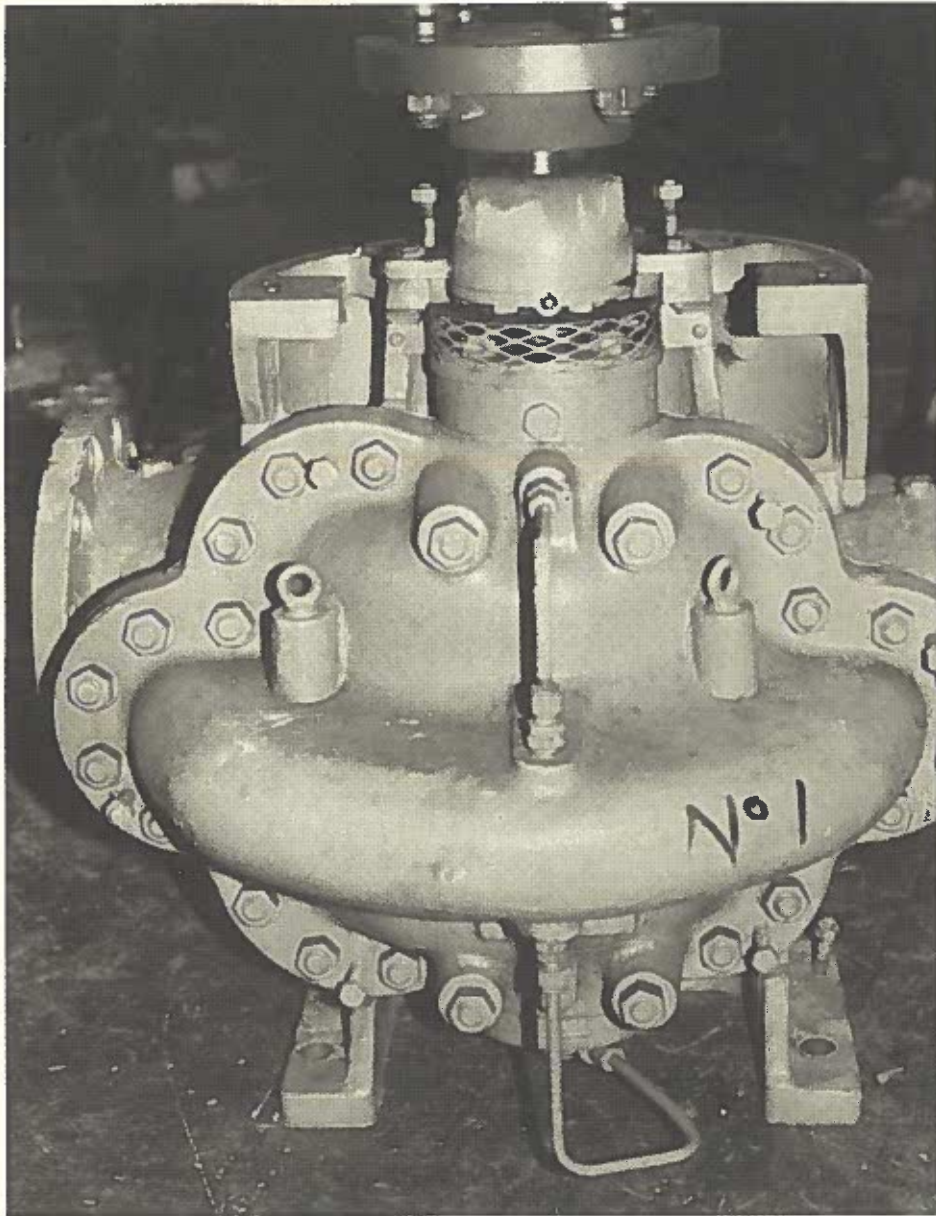
Colin Hickman of Corrocoat Singapore claims this as one of the fastest inspections ever! The condition of the tanks was perfect, with no breakdown or failure whatsoever, and the only visible blemishes were found to be surface contamination.

The owners of the drill ship had only one regret - that they had not requested coating of the associated pipework at the same time, thus avoiding contamination to the potable water from the Fresh Water Generator Lines!



# TECHNICAL INSIGHT

## THE CORROCOAT FLUIGLIDE SYSTEM - A SCIENTIFIC EVALUATION



No. 1 pump, Nutwell

With an energy management strategy which aims to save 10% in electricity costs over a five year period, engineers from Yorkshire Water have been involved since 1988 in a complex R&D project, which should provide significant contributions to this objective. Working in close association with Corrocoat, the team has been looking in detail at the Fluiglidle energy-efficient system, first developed to improve the long-term performance and longevity of pumping equipment.

Corrocoat and Yorkshire Water have collaborated closely on this project since 1985, when early antifriction lining work carried out on large pumps - operational on Yorkshire's Derwent Aqueduct produced astonishing increases in efficiency of up to 8.9%

Current scientific evaluation work is now under way to assess, over a set period of time, the increases in efficiency achieved using different combinations of the Fluiglidle system. Carried out under controlled conditions and using AEMS thermometric monitoring equipment to allow accurate analysis of results, it is anticipated that this R&D work will not only underline the benefits of refurbishing pumpsets using Fluiglidle, but will also illustrate clearly the optimum methods of application. The capital scheme devised by Corrocoat and Yorkshire Water involves high lift pumps at Nutwell Pumping Station, comparing varying application areas for anti-friction linings. Nutwell operates ten high lift pumps, and it was proposed in 1987 to treat these pumps as follows to allow accurate evaluation of results.

### **Pump No 1**

was left in situ, untreated, for operational reasons.

### **Pump No 2**

was refurbished, but left uncoated to act as a control.

### **Pump No 3**

was refurbished, and the wetted areas of the pump casing treated with Fluiglidle.

### **Pump No 4**

was refurbished, and the wetted areas of the pump casing treated with Fluiglidle Mk2 - a new development, with properties similar to the standard Fluiglidle material, but offering a lower friction coefficient and improved resistance to permeation, allowing the coating to be applied in thinner layers with better effect on overall performance.

### **Pump Nos 5 and 6**

were refurbished, and the pump casing and impeller shrouds treated with standard Fluiglidle.

### **Pump No 7**

was refurbished, and the pump



casing and impeller shrouds treated with Fluiglode Mk2.

#### **Pump Nos 8 and 9**

were refurbished, and all internal wetted surfaces treated with standard Fluiglode.

#### **Pump No 10**

was refurbished, and all internal wetted surfaces treated with Fluiglode Mk2.

The obvious aim of this R&D work is to give accurate and documented guidance on the selection of the best possible pump coating method for maximum efficiency gains. As a guideline to potential benefits, in 1987/88, Nutwell High Lift Pumping Station used 1,406,913KWH at a cost of £56,276.00. As mentioned, previous work on the Derwent Aqueduct pumps gave an increase in overall efficiency of 8.9%. It is anticipated that further development work which has been carried out on the coating, resulting in the production of thinner, more efficient layers, could increase this figure up to 10%, potentially reducing the running costs at this station by as much as £6,000.00 per annum.

The project commenced on 1 November, 1988, and is scheduled to continue until 31 October, 1990. Repeated inspections, photographic records and site tests, however, already show clear patterns of behaviour.

In general, definite improvements are clearly illustrated by the performance of the treated pumps. The

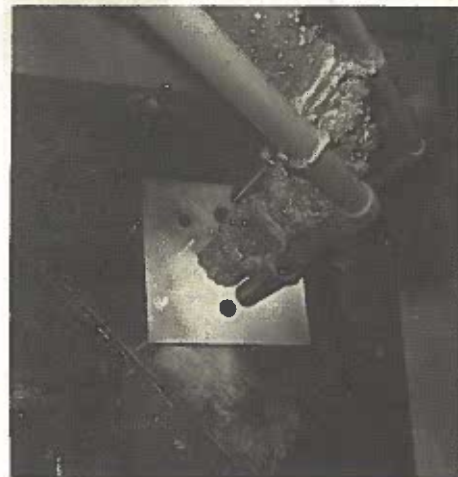
best efficiency gains to date have been achieved where all internal wetted surfaces of the pumpset in question have been treated using the Fluiglode system. Marked efficiency gains have also been noted where the casing and impeller shrouds only have been coated.

However, the project is scheduled to continue until October of 1990, and there is still an important volume of information to be realised by continuous monitoring. It is vital to ascertain how pump hours in service affect results - although it has already been proven conclusively in other tests that efficiency increases gained with the use of the Fluiglode system do not fall off appreciably with the passage of time.

It is proposed that selected reflux valves and immediately adjacent pipework are coated, using Fluiglode, as an extension to the ongoing project. The material layers already applied have been individually coloured to facilitate later endoscope inspection, to determine any wear on the coating. Where possible, the hours run value for each pumpset will be equalised during the course of the project, and pumps will be changed in position and thus duty to determine how this affects the efficiency.

Working closely with Yorkshire Water, Corrocoat hopes to perfect a solution which will be universally applicable throughout the water industry.

## **POLYGLASS - THE EFFECTIVE SOLUTION FOR CONCRETE REPAIR**



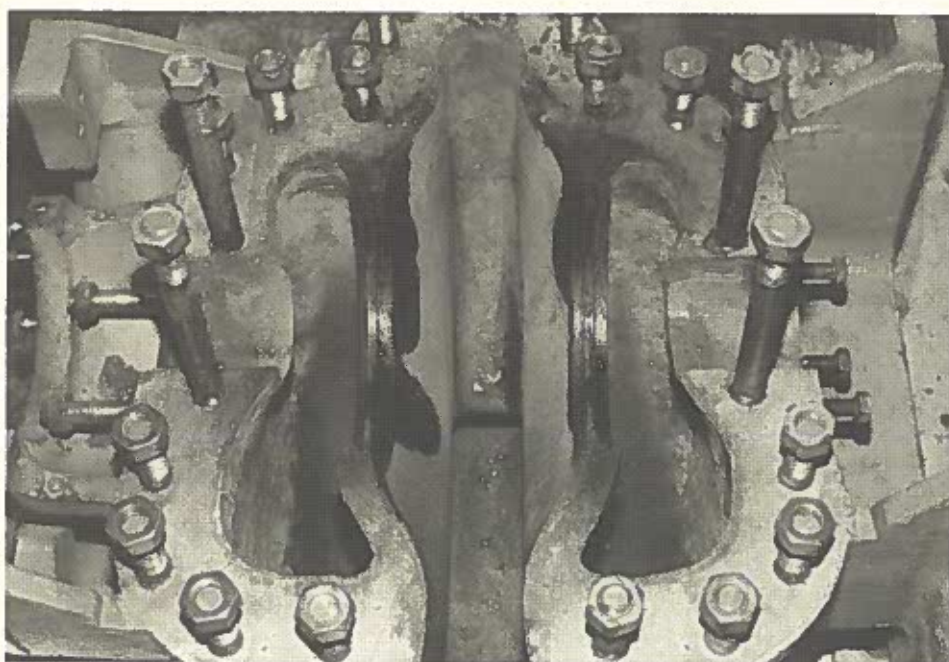
Tanks and vessels subjected to high levels of turbulence and chemical attack often suffer extensively from corrosion damage as a direct result of this combination.

At Elvington treatment works, a concrete flash mixer is used to create turbulence, to improve mixing properties at a point in the system where chlorine and sulphuric acid are added to the water. This action is designed to counteract excess alkalinity resulting from contact with lime and soda ash at an earlier stage of the treatment process.

Over the years, this combination of turbulence and chemical attack from the chlorine and sulphuric acid had resulted in damage to the concrete walls of the flash mixer. In addition, the mixing chamber plinth - manufactured from concrete with a glass plate on the top surface - had suffered severe damage. In some places, concrete loss was as much as 100mm, exposing the reinforcing bars.

The detailed repair task carried out by Corrocoat UK involved removal of the existing gunnite screed, and treatment of the entire tank using Polyglass. The badly damaged mixing chamber plinth was rebuilt to original specifications and coated with Polyglass. The repair was completed in May of 1987, and the flash mixer returned to use.

In February of this year, the unit was drained down to allow a full inspection of the coating. Careful examination revealed no failure or deterioration, even in the area which had previously suffered extensive damage. The flash mixer was returned immediately to service.



*No. 1 pump, bottom casing with rotating element removed*

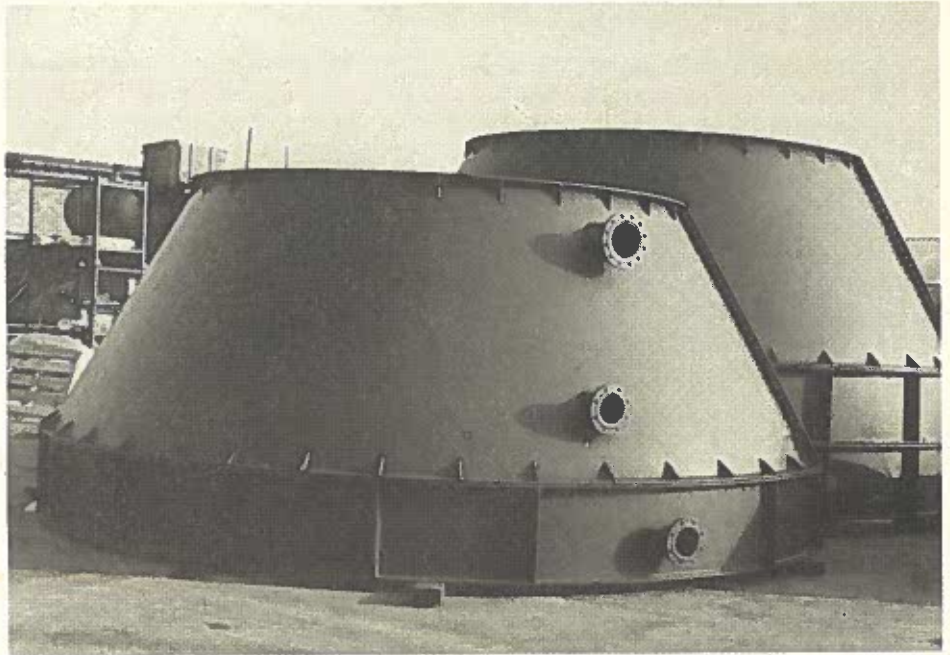


# CORROCOAT WINS £1/2 MILLION CONTRACT FROM YORKSHIRE WATER

Corrocoat has won a contract from Yorkshire Water worth in excess of half a million pounds. The contract calls for specialist corrosion prevention treatment on a large number of steel effluent settlement tanks, which are part of a major programme of sewage treatment works improvements for Yorkshire Water.

Yorkshire Water faces the challenge of carrying out major improvements to some 160 sewage treatment plants throughout the region - a programme which is scheduled for general completion by March, 1992. Meeting these tight time schedules necessitated a fresh approach to this demanding work. Engineers at Yorkshire Water put forward a series of innovative design solutions, using prefabricated modular steel units for certain elements of the treatment works, instead of conventional concrete.

Achievement of this standardisation of design throughout the planned improvement programme is expected to result in considerable savings in capital expenditure. In addition, introduction of the steel settlement tanks, protected by Polyglass, brings the added benefits of marked reductions in installation times and costs.



With so many of the treatment works in question situated in rural locations, it was essential to ensure that planned improvement work did not detract from the natural beauty of the environment. Corrocoat therefore formulated Polyglass in a special colour for this particular application, to ensure that the finished tanks harmonise with the surrounding countryside.

Production of the new steel tanks has

now begun, and coating protection work is already underway at our Leeds works. The tanks are prefabricated in sections, and sent to us for both internal and external coating.

The sections are then stockpiled for call off, in line with Yorkshire Water's improvement programme. Once called off and erected on site, Corrocoat engineers attend to seal between the joints, using a combination of specialist coating techniques.

## POLYGLASS EN MASSE!



A recent shipment to Corrocoat in South Africa broke all the records for our despatch department in Leeds!

The consignment contained Polyglass, Corroglass, Fluiglide and Plasmet materials for use by our colleagues in South Africa.

With an eye on the cost of such shipments, combined with some concern over the projected shelf life of the materials, it was decided to send the shipment in our own refrigerated container - a total of 13 tons of coating materials!

Shipping supervisor Julia Ayrton spent some sleepless nights over the organisation of the shipment, but - expertly packed with the assistance of P&O - the refrigerated container left Corrocoat Leeds in July, bound for South Africa under the capable control of our shippers, Economy Freight Services Ltd.

The consignment arrived safely in Durban some three weeks later, in pristine condition, which augurs well for future shipments!